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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,639	10/07/2003	David C. Dumand	6513-DIV	5095

22922 7590 07/15/2004

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EXAMINER	
MAI, NGOCLAN THI	
ART UNIT	**PAPER NUMBER**
1742	

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/680,639	DUNAND, DAVID C.	
	Examiner	Art Unit	
	Ngoclan T. Mai	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2003*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9,11,12 and 15* is/are rejected.

7)☒ Claim(s) *7-8, 10, 13 and 14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-6 rejected under 35 U.S.C. 102(b) as being anticipated by Sharoni et al.

Sharoni et al disclose superconducting composites consisting of MgB_2 and 11% by volume Al, which has a melting temperature of 933 K or 660°C. The composites are formed by sintering a compacted mixture of MgB_2 and aluminum powders. Page L504, 2nd full paragraph.

Although the composites taught by Sharoni et al is not formed by infiltrating metal component into pores of a porous magnesium boride perform component, the composite taught appears to be the same as the claimed composite because the metal particles when mixed with particles of the superconducting component would inherently be in the spaces or pores left between the superconducting particles. An old or obvious product produced by a new method is not patentable as a product, whether claimed in a product by process claims or not. Note that applicant has the burden of proof in such case.

Also it has been established that a product by process claim is directed to the product per se, no matter how actually made, *In re Kirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Thorpe*, 227 USPQ 964 (CAFC 1985), which makes it clear that it is

the patentability of the final product per se which must be determined in a product by process claim and not the patentability of the process.

With regarding to claims 2 and 4, since the metal component occupies 11% by volume of the composite, the superconducting component would occupy the remainder of the composite, i.e. about 89% by volume, which meets the limitations of these claims.

With regarding claim 6, Sharoni et al teach that the composite formed by sintering the powder mixture does not cause significant deterioration of the 'global' superconducting properties of the MgB_2 particles, (page L504, 4th full paragraph), which meets the limitation "without degradation of said superconducting phase component".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 9, 11-12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharoni et al.

Sharoni et al disclose superconducting composites substantially as claimed. See Sharoni et al., page L504, 2nd full paragraph and 4th full paragraph. The difference between the claims and Sharoni et al is that Sharoni et al do not specifically teach

employing magnesium or magnesium alloying with another metallic component as the metal phase.

Sharoni et al, however, teach that to improve its mechanical properties MgB2 can be formed into composite with a malleable metal, which should have a low melting temperature to yield sintering at about 600 K. Since it is known that magnesium is a malleable metal and also having melting point similar to aluminum (Mg melting point 922 K and Al melting point 933 K), it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute magnesium for aluminum as the metal phase for forming the superconducting composite taught by Sharoni et al.

It would also be obvious to one of ordinary skill in the art to employ the alloy of magnesium whose alloying metal components, each has a melting point which does not significantly alter the melting point of the magnesium alloy as a whole to meet the requirement of low melting material taught by Sharoni et al. Determination of the type of alloying component whose melting temperature meets this specification is within the skill in the art and would have been obvious.

Claims 7-8, 10, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoclan T. Mai whose telephone number is (571) 272-1246. The examiner can normally be reached on 7:30-4:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N Ngoclan Mai

Ngoclan T. Mai
Primary Examiner
Art Unit 1742

n.m.